

ABSTRACT

An optical receiver, for use for instance in an analog optical communications system such as a return path in cable television, operates over a wide range of input power to its photodetector. This is accomplished by providing in the optical receiver a series of RF amplifier stages where at least one of the stages includes a fixed attenuator and a parallel amplifier with switches suitably connected so that, at any one time, only one of the fixed attenuator or the amplifier is in the signal path. The switches are controlled so that the dynamic range of the optical receiver is improved in order to make gain reduction more accurate. Hence by redirecting the RF signal path to either the attenuator or amplifier of the amplifier stage, excessive noise and distortion by the amplifier stage are eliminated or reduced.